

<b>Dataset Expocode</b>	<b>74E320111003</b>
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<b>Investigator</b>	<b>Name:</b> Kitidis, Dr. Vassilis <b>Organization:</b> Plymouth Marine Laboratory <b>Address:</b> Prospect Place Plymouth PL13DH <b>Phone:</b> +441752633100 <b>Email:</b> vak@pml.ac.uk
<b>Dataset</b>	<b>Funding Info:</b> UK-NERC Shelf Seas Biogeochemistry (NE/K002058/1) <b>Initial Submission (yyyymmdd):</b> 20180115 <b>Revised Submission (yyyymmdd):</b>
<b>Campaign/Cruise</b>	<b>Expocode:</b> 74E320111003 <b>Campaign/Cruise Name:</b> D371 (AMT21) <b>Campaign/Cruise Info:</b> D371 Atlantic Meridional Transect (AMT21) <b>Platform Type:</b> <b>CO2 Instrument Type:</b> Equilibrator-IR or CRDS or GC <b>Survey Type:</b> Research Cruise <b>Vessel Name:</b> RRS Discovery <b>Vessel Owner:</b> UK-Natural Environment Research Council <b>Vessel Code:</b> 74E3
<b>Coverage</b>	<b>Start Date (yyyymmdd):</b> 20111003 <b>End Date (yyyymmdd):</b> 20111109 <b>Westernmost Longitude:</b> 54.3133 W <b>Easternmost Longitude:</b> 20.4959 W <b>Northernmost Latitude:</b> 42.9022 N <b>Southernmost Latitude:</b> 46.7755 S <b>Port of Call:</b> Southampton (UK)
<b>Variable</b>	<b>Name:</b> xCO2_equ[umol/mol] <b>Unit:</b> micro-mol/mol <b>Description:</b> CO2 mixing ratio measured at Tequ (wet)
<b>Variable</b>	<b>Name:</b> Patm [hPa] <b>Unit:</b> hecta-Pascal <b>Description:</b> Atmospheric Pressure
<b>Variable</b>	<b>Name:</b> Tequ [deg.C] <b>Unit:</b> degrees Celsius <b>Description:</b> Temperature in Equilibrator
<b>Variable</b>	<b>Name:</b> SST [deg.C] <b>Unit:</b> degrees Celsius <b>Description:</b> Sea Surface Temperature (at intake depth=6m)
<b>Variable</b>	<b>Name:</b> Sal <b>Unit:</b> unitless or PSU <b>Description:</b> Salinity
<b>Variable</b>	<b>Name:</b> pCO2_sw[uatm] <b>Unit:</b> micro-atm

**Description:** Seawater partial pressure of CO2 at SST (wet)

**Variable**

**Name:** pCO2\_atm[uatm]

**Unit:** micro-atm

**Description:** Atmospheric partial pressure of CO2 (wet)

**Variable**

**Name:** fCO2\_sw[uatm]

**Unit:** micro-atm

**Description:** Seawater fugacity of CO2 at SST (wet)

**Variable**

**Name:** fCO2\_atm[uatm]

**Unit:** micro-atm

**Description:** Atmospheric fugacity of CO2 (wet)

**Variable**

**Name:** xCO2atm\_dry[umol/mol]

**Unit:** micro-mol/mol

**Description:** Atmospheric CO2 mixing ratio

**Variable**

**Name:** Pequ [hPa]

**Unit:** hecta-Pascal

**Description:** Equilibration Pressure

**Sea Surface  
Temperature**

**Location:** Adjacent to intake at 6 m depth

**Manufacturer:** SeaBird Electronics

**Model:** SBE 45 (serial #: 0229)

**Accuracy:** 0.001 (°C if units not given)

**Precision:** 0.001 (°C if units not given)

**Calibration:** Recorded by National Marine Facilities Sea Systems and kept by British Oceanographic Data Centre ([www.bodc.ac.uk](http://www.bodc.ac.uk))

**Comments:**

**Sea Surface Salinity**

**Location:** Adjacent to intake at 6 m depth

**Manufacturer:** SeaBird Electronics

**Model:** SBE 45 (serial #: 0229)

**Accuracy:** 0.002

**Precision:** 0.002

**Calibration:** Recorded by National Marine Facilities Sea Systems and kept by British Oceanographic Data Centre ([www.bodc.ac.uk](http://www.bodc.ac.uk))

**Comments:**

**Atmospheric  
Pressure**

**Location:** Met-platform on foremast, 18 m asl

**Normalized to Sea Level:** yes

**Manufacturer:** Vaisala

**Model:** PTB110 barometer

**Accuracy:** 1 hPa (hPa if units not given)

**Precision:** 1 hPa (hPa if units not given)

**Calibration:** Recorded by National Marine Facilities Sea Systems and kept by British Oceanographic Data Centre ([www.bodc.ac.uk](http://www.bodc.ac.uk))

**Comments:**

**Atmospheric CO2**

**Measured/Frequency:** yes, circa every 20 minutes

**Intake Location:** Met-platform on foremast, 18 m asl

**Drying Method:** Peltier drier to < 20% humidity

**Atmospheric CO2 Accuracy:** <2 micro-atm fCO2

**Atmospheric CO2 Precision:** <0.5 micro-atm fCO2

**Aqueous CO2  
Equilibrator Design**

**System Manufacturer:** Dartcom-PML LivepCO2

**Intake Depth:** 6 m

**Intake Location:** Hull  
**Equilibration Type:** Headspace (vented)  
**Equilibrator Volume (L):** 2.5  
**Headspace Gas Flow Rate (ml/min):** 200  
**Equilibrator Water Flow Rate (L/min):** 1.6  
**Equilibrator Vented:** Yes  
**Equilibration Comments:**  
**Drying Method:** Peltier drier to <20% humidity

**Aqueous CO2  
Sensor Details**

**Measurement Method:** IR  
**Method details:** Non Dispersive IR Sensor  
**Manufacturer:** LICOR  
**Model:** LI-840  
**Measured CO2 Values:** xCO2 dry  
**Measurement Frequency:** Every 20 minutes  
**Aqueous CO2 Accuracy:** <2 micro-atm fCO2  
**Aqueous CO2 Precision:** <0.5 micro-atm fCO2  
**Sensor Calibrations:** Sensor calibration during deployment using 3 gas standards (nominally 250; 380 and 450 ppmv CO2 in synthetic air)  
**Calibration of Calibration Gases:** Ship  
**Number Non-Zero Gas Standards:** 3  
**Calibration Gases:**  
BOC gases Ltd., nominally 250; 380 and 450 ppmv CO2 in synthetic air  
**Comparison to Other CO2 Analyses:**  
**Comments:**  
**Method Reference:**  
Ribas-Ribas et al. 2014. Intercomparison of carbonate chemistry measurements on a cruise in northwestern European shelf seas. Biogeosciences. 11: 4339-4355

**Equilibrator  
Temperature Sensor**

**Location:** Platinum Resistance Thermocouple (PT100) in equilibrator  
**Manufacturer:** Pico-Technology  
**Model:** PT100 Class B  
**Accuracy:** 0.01 (°C if units not given)  
**Precision:** 0.01 (°C if units not given)  
**Calibration:** Calibrated prior to cruise (ice-point)  
**Comments:**

**Equilibrator  
Pressure Sensor**

**Location:** In-line with  
**Manufacturer:** Druck Gmbh  
**Model:** PTX7517-3257  
**Accuracy:** 0.1 (hPa if units not given)  
**Precision:** 0.1 (hPa if units not given)  
**Calibration:** Calibrated annually  
**Comments:**

**Additional  
Information**

**Suggested QC flag from Data Provider:** NA  
**Additional Comments:**  
**Citation for this Dataset:**  
**Other References for this Dataset:**